



The Balance of Ecological Destruction and Repair

Ecological restoration has been receiving enormous attention in recent years. The National Research Council book *Restoration of Aquatic Ecosystems: Science, Technology, and Public Policy* (Washington, DC:National Academy Press, 1992) received substantial and widespread publicity from the news media on its release, as well as substantive attention from the scientific community. A new journal, *Restoration Ecology*, has just been launched, and attendance in special sessions devoted to ecological restoration at professional meetings is commonly standing room only. All of this is very reassuring until one compares the rates of ecological destruction and repair. Widespread damage can occur in a matter of days, as it did in the Exxon Valdez oil spill in Prince William Sound, or it may occur incrementally over a number of years, as in the case of tropical rain forests and old-growth forests throughout the planet. Healing the damage may require decades or centuries, and even then, the restored ecosystem will almost certainly not be a precise match of its predisturbance condition.

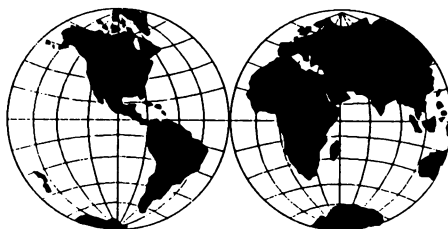
Attempts to preserve remaining, relatively undamaged, natural systems may encounter fierce resistance, as was quite evident in the case of spotted owl habitat in the Pacific Northwest of the United States. Some environmentalists even question developing an ecological restoration capability since they feel that such policies may encourage further environmental destruction because those wishing to extract minerals, trees, fossil fuels, and the like will offer to restore the ecosystem as soon as they have finished carrying out

their activities. The only effective counter-arguments to this viewpoint are both the cost of effective ecological restoration and the uncertainty of achieving a close approximation of predisturbance conditions. Difficulties in maintaining a balance between destruction and repair are best illustrated in the mitigative process where a wetland or other ecosystem is destroyed by the construction of an airport taxiway, etc., and a replacement wetland is constructed or created elsewhere. Even if the construction process is a resounding success, the replacement wetland may not achieve full ecological function and structure for many years, even though these attributes immediately disappear from the original because that wetland was removed through development.

Restoration ecology is a young science, and the ecological restoration projects now underway will furnish valuable information as well as validate or falsify theoretical restoration models. Until human society develops policy based on an integration of the two rate processes (i.e., ecological destruction and repair), the long-term relationship between human society and natural systems will probably not be markedly improved.

However, the continual increases in the human population lead to inexorable demands for expanded living space, causing enlargement of existing cities and major human intrusion into previously undeveloped areas. How could society better direct this process? A step in the right direction would be to try to preserve undisturbed, natural ecosystems and also to begin to repair and restore damaged ones. Implementation of such a policy could improve the balance between the constructive and destructive actions that occur during societal development and should help to lessen the impact of societal expansion.

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